Effective Date	Type	Docket Number	Description
10/24/91	Tariff & Effective Rates	90-01-03	Name change to Springwich.
01/03/92	Promotion	none	Suspend Hot Line charge for period 1/3/92 - 12/31/92.
01/15/92	Effective Rates	none	Lower Peak & Off-Peak Usage rates by $.01 per tier.
05/01/92	Promotion	none	Suspend Number Activation and Restoral Charge: 5/1/92 - 12/31/92.
07/01/92	Effective Rates	none	(1) Lower Peak & Off-Peak usage rates by $.03 per tier. (2) Activate Length of Service Discount, maximum = 1.5%
07/01/92	Promotion	none	(1) Waive Svc. Order Change/ Feature Activation Charge, and (2) Waive all monthly Optional Feature charges: 7/1/92 - 12/31/92.
12/30/92	Tariff & Effective Rates	92-10-05	Initial Period Charge to be rated at one-half applicable usage rate.
01/04/93	Promotion	none	Suspend Hot Line Charge for period 1/4/93-12/31/93.
09/13/93	Effective Rates	none	Reduce Cellular Number Rates by $2.00 per tier.
09/13/93	Promotion	none	For period 9/13/93-3/31/94: (1) Further reduce Cellular Number Rates by $2.00 per tier. (2) Waive non-recurring charges.
09/15/93	Tariff	none	Eliminate the monthly minimum usage requirement.

Effective Date	Type	Docket Number	Description
04/01/94	Promotion	none	1) Suspend Hot Line charge for period 4/1/94-3/31/95. 2) Continue promotional reduction of Cellular Number Rate by $2.00 per tier for period 4/1/94-12/31/94.
06/27/94	Effective Rates & Promotion	none	1) Reduce Cellular Number charge rates by $2.00 per tier (making the promotion effective 4/1/94 an effective rate change). 2) Promotion to reduce off peak usage rate to $0.05 per minute (all tiers) for period 6/27/94-10/31/94.
08/12/94	Tariff	94-03-27	Change advance notice period from thirty days to five days.
08/12/94	Effective Rates	none	Reduce Cellular Number charge rates by an average of 35% per tier.

Exhibit 8

CONNECTICUT PAGING LICENSEES

RADIO COMMON CARRIERS

1. AMERICAN PAGING
2. ARCH CT VALLEY
3. CARRIER COMMUNICATION CORP
4. COM NAV MARINE, INC.
5. CONTACT COMMUNICATIONS
6. MASS CT
7. MESSAGE CENTER
8. METRO CALL
9. METROMEDIA
10. METRONET OF NEW YORK
11. MID ATLANTIC
12. MILLICON
13. MOBILECOMM NATIONWIDE
14. NATIONAL BEEPER
15. O.R. ESTMAN
16. PAGE AMERICA
17. PAGENET
18. PAGING PARTNERS
19. RADIO PHONE
20. RADIO RELAY
21. RAM COMMUNCIATIONS
22. SKYTEL/MTEL
23. SNET PAGING
24. SOUTHLAND HOLDINGS
25. TNI ASSOCIATES, INC.
26. TRI STATE PAGING

PRIVATE CARRIERS

1. AMERICA SATELLITE
2. BEEPAGE
3. CITINET
4. FIRST NATIONAL PAGING CO.
5. GREEN LINE PARTNERS
6. MAP MOBILE
7. MARCUS COMMUNICATIONS
8. METAGRAM
9. PACTEL
10. PAGEMART
11. PAGETEL
12. PRO NET
13. TRI STATE RADIO

Exhibit 9

SPECIALIZED MOBILE RADIO (SMR)

LICENSEES IN CONNECTICUT

SMR BAND 851-866 MHz

1. AMERICAN MICROSIGNAL CORP
2. AMK COMMUNICATIONS INC. (NEXTEL)
3. AUTOCOM INC.
4. BARNETT, SHERI
5. BELL, CARL E.
6. BIGHINATTI, DONALD
7. BRANSON, LESLIE
8. CELLULAR NETWORK, INC.
9. COMMUNICATION SPECIALIST INC.
10. DISPATCH COMMUNICATIONS (NEXTEL)
11. GANDOLFO, JUDITH A.
12. GENERAL COMMUNICATIONS INC.
13. HOWARD A. MCAULIFFE INC.
14. INDUSTRIAL COMMUNICATIONS &
15. JESSICA ZACHS INC.
16. KEMP COMMUNCIATIONS INC.
17. LOOMIS III, TOM S.
18. MANTZ, LUCY
19. MARCUS COMMUNICATIONS INC.
20. MCDONALD COMMUNICATIONS
21. METROLINK MOBILE TELEPHONE
22. MORRISEY, RICHARD
23. MOTOROLA INC.
24. PROGRESSIVE COMMUNICATIONS
25. SKIERKA, RICH
26. SMART SMR OF NEW YORK INC.(NEXTEL)
27. THREE WAY COMMUNICATIONS INC.
28. TRS INC
29. ULLATHORNE, IAN
30. ZACHS, HENRY M.

SMR BAND 935-940 MHz

1. ACTIVATED COMMUNICATIONS INC.
2. BERKLE, FRANCES H.
3. CLEAR CHANNEL COMMUNICATIONS
4. DANOFF, ED
5. MILLICOM RADIO TELEPHONE COM.
6. POWER SPECTRUM OF HARTFORD
7. RAM MOBILE DATA USA LIMIED
8. RAM MOBILE DATA USA LP
9. RAWLINSON, CAREY L.
10. STETTER, JOHN
11. WANG, RICHARD Y C

Exhibit 10

Affidavit of Professor Jerry A. Hausman

1. My name is Jerry A. Hausman. I am the MacDonald Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts, 02139.

2. I received an A.B. degree from Brown University and a B.Phil. and D. Phil. (Ph.D.) in Economics from Oxford University where I was a Marshall Scholar. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I teach a course in "Competition in Telecommunications" to graduate students in economics and business at MIT each year. Mobile telecommunications, including competitive and technological developments in cellular, ESMR, satellite, and PCS, are some of the primary topics covered in the course. I was a member of the editorial board of the Rand (formerly the Bell) Journal of Economics for the past 13 years. The Rand Journal is the leading economics journal of applied microeconomics and regulation. In December 1985, I received the John Bates Clark Award of the American Economic Association for the most "significant contributions to economics" by an economist under forty years of age. I have received numerous other academic and economic society awards. My curriculum vitae is attached.

3. I have done significant amounts of research in the telecommunications industry. My first experience in this area was in 1969 when I studied the Alaskan telephone system for the Army Corps of Engineers. Since that time, I have studied the demand for local measured service, the demand for intrastate toll service, consumer demands for new types of telecommunications technologies, marginal costs of local service, costs and benefits of different

types of local services, including the effect of higher access fees on consumer welfare, demand and prices in the cellular telephone industry, and consumer demands for new types of pricing options for long distance service. I have also studied the effects of new entry on competition in paging markets, telecommunications equipment markets, exchange access markets, and interexchange markets and have published a number of papers in academic journals about telecommunications. Lastly, I have also edited two recent books, Future Competition in Telecommunications (Harvard Business School Press, 1989) and Globalization, Technology, and Competition in Telecommunications (Harvard Business School Press, 1993).

4. I have been involved in the cellular industry since 1984. I participated in PacTel's purchase of Communications Industries in 1985 and have provided testimony on previous occasions on cellular competition and regulation to the California PUC, the North Carolina PSC, and the Connecticut PUC. I also previously submitted testimony to the FCC on questions of cellular regulation, including the question of whether cellular companies should be allowed to bundle cellular CPE with cellular service, whether the FCC should forbear from regulation of mobile service providers, and whether the FCC should require equal access obligations on CMRS providers. During the PCS proceedings I have filed 6 affidavits which considered eligibility questions for LECs, the presence of economies of scale and scope in providing PCS, the design of an appropriate auction framework for PCS spectrum, spectrum allocation and band size, eligibility for in-region cellular companies, and the appropriate framework for pioneer preferences. I spoke at the FCC Task Force meeting on PCS held on April 11, 1994. I also have done significant academic research in mobile telecommunications and it is one of the primary topics in my graduate course, "Competition in Telecommunications", which I teach each year at MIT.

5. I am also submitting affidavits on behalf of AirTouch Communications and Bell Atlantic Mobile in this proceeding. Some of the material is common to more than one affidavit.

I. Summary and Conclusions

6. I have been asked by the Cellular Telecommunications Industry Association (CTIA) to consider the question of whether state regulation of cellular prices benefits consumers. I have collected data from the majority of cellular providers in the U.S. regarding their cellular prices for the period 1989-1993. I analyze these data in this affidavit.

7. Econometric analysis using these data demonstrates that regulation of cellular service prices leads to higher cellular prices on the order of 5%-15%. This econometric analysis accounts for population, commuting time and other economic factors which can be expected to affect cellular prices. The econometric analysis demonstrates that regulation is the most important single factor explaining the high cellular prices in regulated states.

8. New York and California, both of which are petitioning the FCC to be allowed to continue regulation, have the highest cellular prices in the U.S. for larger MSAs. California is also the only state which requires a fixed margin between wholesale rate and retail rates for cellular. Overall, I estimate that the anti-competitive regulation of the California Public Utilities Commission (CPUC) currently costs California cellular customers approximately $250 million per year.

9. Cellular regulation also leads to significantly lower penetration of cellular in MSAs. Protection of resellers, a goal of the CPUC does not lead to greater penetration. However, higher prices do lead to lower penetration because of a significant demand elasticity for cellular service. Thus,

regulation is also leading to decreased usage of the scarce spectrum and the cellular network infrastructure.

II. Cellular Prices are High in Regulated States

10. The goal of regulation should be high quality service and competitive prices for consumers. Regulation has failed to achieve these goals. In Table 1 I list monthly service prices in 1994 for the least expensive plan for average usage of 160 minutes per month (80% peak) for up to a 1 year contract:

Table 1: Average Cellular Prices in the Top 10 MSAs: 1994
160 minutes of use (80% peak)[1]

MSA No.	MSA	Monthly Price	Regulated
1.	New York	$110.77	Yes
2.	Los Angeles	99.99	Yes
3.	Chicago	58.82	
4.	Philadelphia	80.98	
5.	Detroit	66.76	
6.	Dallas	59.78	
7.	Boston	82.16	Yes
8.	Washington	76.89	
9.	San Francisco	99.47	Yes
10.	Houston	80.33	

The fact that regulation goes along with higher monthly service prices is evident from Table 1. Every regulated price in Table 1 is greater than every unregulated price in Table 1.[2] The average price of regulated MSAs is $98.10 while the average price of unregulated MSAs is $70.59, which is a difference of $27.51 per month or 39%. Thus, cellular customers in New York and California as well as Massachusetts are paying a large extra amount each month

[1] This usage, 160 minutes per month, is the approximate average usage of cellular customers.

[2] The probability that every regulated price would exceed every unregulated price if the prices had no relationship to regulation is 0.00002.

for their cellular service.[3]

11. Now an obvious objection to this comparison is that some of the unregulated cities are relatively expensive, e.g. the CPUC in its pleading has pointed to Philadelphia which is $80.98 per month (CPUC, p. 46). Yet even using "data mining" (i.e. pick your favorite example), the CPUC is left to explain why Philadelphia is still $18.49 per month less expensive than San Francisco.[4] Presumably, the CPUC would have even more difficulty explaining why Chicago is $40.65 less expensive than San Francisco (or Los Angeles), and why Detroit and Dallas are again at least $35 per month cheaper than San Francisco. Of course, New York City is the most expensive MSA of all--it is 88% more expensive than Chicago, an unregulated MSA. Thus, Chicago has enjoyed significant advantages over New York both in the quality of its basketball team and its cellular prices, equally important ingredients in a contented urban lifestyle.

12. A somewhat more serious potential objection is that other economic factors aside from regulation explain the higher cellular prices in regulated states. Thus, I have run a regression on cellular prices in the top 30 MSAs which accounts for MSA population, average commuting time, average MSA income, and whether the company is Block A or Block B. The results are given in Appendix 1. The coefficient of the regulation variable is 0.15 which means that regulated states have cellular prices that are 15% higher, holding other economic factors equal. The coefficient is estimated very precisely (standard error = 0.052) and the finding is highly statistically significant (t statistic = 2.88). Thus, states which regulate do have significantly higher

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[3] I understand the Massachusetts DPU has decided to end regulation of cellular, and it has not petitioned the FCC.

[4] While the CPUC claims incorrectly that Philadelphia has "among the nation's highest [cellular rates]" (CPUC p. 46), it fails to explain why Philadelphia rates are lower than every regulated MSA in Table 1.

cellular prices in large MSAs.[5] Now in the top 30 MSAs overall, regulated prices are 23.6% higher. Thus, other economic factors explain about 9% of the higher prices and regulation explains 15%. Thus, regulation is the major factor associated with the higher prices.

13. In Appendix 2 I repeat the econometric analysis using data reported to me by the companies in each of the top 30 MSAs for 160 minutes of use for the years 1989-1993. First note that regulation leads to a higher price of 14.2% which is again estimated quite precisely (standard error = .029) and is very statistically significant (t statistic = 4.9) Also, the yearly indicator variables (1993 is the left out year) demonstrate that CPI deflated cellular prices have decreased by 17.3% between 1989 and 1993. Thus, using data over a 5 year period again demonstrates that cellular prices are higher in regulated states.

14. I then did a similar econometric analysis, but I used prices in the top 30 MSAs for 250 minutes per month for a typical "high usage" customer. My estimate of the effect of regulation on price is 15.0% higher, which is again extremely statistically significant (t statistic = 6.52). Note that CPI adjusted cellular prices for 250 minutes of use have decreased by 15.9% over the 5 year period.

15. Lastly, I did a similar econometric analysis for 30 minutes of monthly usage--a very light user of cellular. Here the estimated effect of regulation is even larger. The coefficient estimate is 18.4% and it is highly statistically significant (t statistic = 4.2) Again real prices have decreased, but not by as large an amount--here 10.0%. Thus, econometric analysis demonstrates that in large MSAs for average usage of 160 minutes per month, for high usage of 250 minutes per month, and for low usage of 30

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[5] I do not find an effect of regulation on cellular prices in smaller MSAs.

minutes per month that regulation is associated with higher prices of about 15%. Thus, regulation leads to higher prices, and it harms consumers.

16. I repeated the econometric analysis for RSAs in Appendix 3. I again find a significant effect that regulation leads to higher prices. For average usage of 160 minutes regulation leads to prices which are higher by 18.6% (t statistic = 8.1) For heavy usage of 250 minutes regulation leads to higher prices of 15.9% (t statistic = 6.6), and for light usage of 30 minutes per month regulation leads to higher prices of 12.4% (t statistic = 4.1). Thus, I once again find that regulation leads to significantly higher prices in regulated states than in unregulated states. The estimated effect of regulation is quite similar to the effect that I estimate in the top 30 MSAs.

17. Why does regulation lead to higher prices? First, regulation causes your competitors to know in advance what your prices are going to be. Indeed, if your competitor does not like your proposed prices (presumably they are too low) the competitor protests the prices to the state commission, e.g. the CPUC. The resellers in California have protested discount plans proposed by the cellular carriers numerous times. Last year, Nextel, the new ESMR carrier in Los Angeles, protested rate reductions proposed by LACTC (the Block A carrier). The CPUC has not yet resolved these protests regarding the lower priced contracts; and in principle, resellers and Nextel could sue for damages in the future. Furthermore, the carriers expended significant resources in answering the protests. Thus, these protests have a "chilling effect" on competition. Also, regulation restricts the ability of cellular companies to set company specific rates to cause greater usage of cellular. Regulatory commissions such as the CPUC also restrict the use of multi-year contracts, by imposing significant restrictions on their terms, which would allow for lower prices. Regulation also imposes significant costs on cellular carriers in terms of meeting all the regulatory requirements on filings, data systems, and other regulatory reports.

18. Cellular prices have decreased in recent years. For instance, in Los Angeles the minimum price for average minutes of usage has decreased by $11.25 per month or about 10.1% in the past two years. However, if I compare price changes in regulated and non-regulated states, non-regulated states again do better. From 1985-1994 prices in the top 30 MSAs decreased by 4% in regulated states (7% in California) while prices decreased by 17% in non-regulated MSAs. This difference is once again statistically significant. If I compare real (CPI adjusted) cellular prices, I find the same result (as must happen). In regulated states the CPI cellular price decreased by 27% over the 1985-93 period while it decreased by 37% in non-regulated states.[6] Thus, not only are prices higher in regulated states, they are decreasing less rapidly. Regulation of cellular prices does not benefit consumers.

19. Similarly, if I use the company data over the time period 1989-1993 I find that prices decreased more in unregulated states. For 160 minutes of usage for the top 30 MSA, prices in unregulated states decreased by 8.0% more (t statistic = 2.2) than in regulated states. For 250 minutes of usage prices in unregulated states decreased by 8.3% (t statistic = 1.8) more than in regulated states. Lastly, for 30 minutes of use prices in unregulated states decreased by 20.2% (t statistic = 2.0) more than in regulated states. Thus, a comparison of the change in prices for all three usage levels demonstrates that prices decreased more rapidly in unregulated states than in regulated states.

III. Cellular Penetration is Lower in Regulated States

20. Some regulators for cellular, e.g. the CPUC, have claimed that their regulation has protected resellers and led to higher cellular penetration. First, presence of resellers has no noticeable effect on

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[6] For this comparison I used prices up through the end of 1993 because of the unavailability of the CPI.

competition. For instance, in the Chicago MSA, where resellers have an insignificant presence, cellular prices are quite low. Indeed, in Los Angeles where the CPUC has attempted to protect resellers by enforcing a markup of retail prices over wholesale prices, cellular prices for 160 minutes of use are 69.7% higher than they are in Chicago. For 30 minutes of use Los Angeles is 64.6% more expensive than Chicago, and for 250 minutes of use Los Angeles is 51.9% more expensive than Chicago. Very similar results arise if San Francisco is used to compare to Chicago.

21. Cellular penetration is also higher in unregulated MSAs.[7] In Table 2 I give penetration relative to New York.[8]

Table 2: Cellular Penetration in the Top 10 MSAs: 1994

New York is used as basis: New York = 1.0

MSA No.	MSA	1989 Penetration	1993 Penetration	Regulated
1.	New York	1.00	1.00	Yes
2.	Los Angeles	1.42	1.30	Yes
3.	Chicago	2.04	2.92	
4.	Philadelphia	1.45	1.61	
5.	Detroit	1.72	.74	
6.	Dallas	1.71	2.06	
7.	Boston	1.79	2.35	Yes
8.	Washington	2.47	2.39	
9.	San Francisco	1.37	1.40	Yes
10.	Houston	1.45	1.98	
	Average Regulated	1.29	1.30	Yes
	Average Unregulated	1.82	2.19	

[7] This finding is contrary to the claim in the CPUC petition that cellular penetration is highest in California. (CPUC Petition, pp. 26) The CPUC gives no data source, and my data, collected from the companies, contradicts the CPUC claim.

[8] Subscriber data are highly confidential data. Thus, I have estimated penetration and used New York as my basis. Otherwise, given that a cellular carrier in a given MSA knows its own subscriber count, knowing the overall MSA penetration would allow it to calculate its competitor's number of subscribers.

Thus, 1993 penetration is highest in Chicago, an unregulated MSA. Penetration is also high in Washington (unregulated), Boston (regulated), Dallas (unregulated), and Houston (unregulated). Overall, 1993 penetration is higher in unregulated states with an index of 2.19 while penetration in regulated states has an index of 1.30. Also, growth is higher in unregulated than in regulated states. Growth in penetration in unregulated states averaged 32.6% while growth in regulated states was 28.2%. Both the higher penetration and the higher growth rates in unregulated states are consistent with the lower prices in unregulated states and the greater decrease in prices since 1989 in unregulated states.

22. In Appendix 4 I do an econometric analysis of cellular demand. Here the left hand side variable is the number of subscribers and the right hand side price variable is the log of price for 160 minutes along with variable for log of income, log of population, log of commute time, regulation, and year. The estimate of the price elasticity is -0.40 (t statistic = 2.6). This elasticity estimate explains the results, at least in part, of why penetration is higher in unregulated states with their lower prices. Note that the population variable estimate is 0.95, which is not statistically different from 1.0, as would be expected. A significant effect of commuting time in the MSA is also found to be important.

23. Also, in Appendix 4 I reestimate the demand model using instrumental variables. This estimation methodology takes account of possible joint endogenity of price and demand. When I use instrumental variables on the model, I estimate the demand elasticity to be -0.50 (t statistic = 2.9). Thus, I find a somewhat higher elasticity estimate than before which would yield a larger effect of higher prices in regulated states on reducing demand for cellular. When I do a Hausman specification test, I do not reject the elasticity estimate from the initial model. Note that the parameter estimate for the other variables, e.g. population, remain virtually the same.

24. The price elasticity estimates -0.4 to -0.5 are inconsistent with claims that the cellular carriers in each MSA are behaving like a "shared monopoly". Basic theory in economics states that a monopolist always finds it to be profit maximizing to raise price until the price elasticity exceeds 1.0 (in magnitude). Here the magnitude of the price elasticity estimate between 0.40 and 0.50 is far different than 1.0. Indeed, a t test rejects the hypothesis that the price elasticity could be as high as 1.0 (t statistic = 3.87). Thus, the demand equation estimates demonstrate that the cellular duopolists are not setting prices consistent with monopoly behavior.

25. Another interesting result arises from the regression results in Appendix 4. Note that the effect of regulation is to lead to lower cellular demand by 16.1% (t statistic 2.5). Thus states like California which restrict the terms of long term contracts, restrict the terms of special company specific contracts, and restrict the terms of promotions cause cellular demand to be lower, even after holding population and cellular price constant. Given the scarcity and economic value of the spectrum used for cellular, this added negative effect of regulation harms consumers and leads to less use of the spectrum than in unregulated states.

IV. Conclusion

26. Prices are higher in large MSAs which are regulated. Price decreases are lower in large MSAs which are regulated. Penetration is lower in large MSAs which are regulated. Demand for cellular is decreased in large MSAs which are regulated because of higher prices. Demand for cellular is decreased in large MSAs, even beyond the price effect, because of other restrictions on cellular promotions and contracts. All of these effects demonstrate that cellular regulations harms consumers. Yet the goal of regulation should be to help consumers. Thus, it is time the FCC pre-empted regulation and stopped state regulators in California, New York and other

states from causing further harm to cellular customers.

Jerry Hausman

Subscribed and sworn to before me
this 14th day of September 1994.

Notary Public
My commission Expires 7/3/98

Appendix 1

1994 Price Regression for Top 30 Cellular Markets
Left hand Side Variable: Log of Price <1

Variable	Estimate	Standard Error
Intercept	0.539	2.052
Log of Income <2	0.203	0.236
Log of Population <3	-0.029	0.052
Log of Commute Time <4	0.624	0.266
Regulation	0.150	0.052

Number of Observations	58
Standard Error of Regression	0.148
R Squared	0.596

Notes:
1> Minimum monthly bill is based on 128 minutes of peak calling and 32 minutes of off-peak calling.
2> Log of per capita personal income. Source: Survey of Current Business, April 1992.
3> Log of population. Source: 1992 Statistical Abstract.
4> Mean commute time from home to work. Source: 1990 U.S. Census, Tape File 3c.

1989-93 Price Regression for Top 30 Cellular Markets
Left hand Side Variable: Log of Price at 160 MOU <1

Variable	Estimate	Standard Error
Intercept	2.549	1.150
Log of Income <2	0.075	0.143
Log of Population <3	0.050	0.030
Log of Commute Time <4	0.091	0.170
Regulation	0.142	0.029
Year 89	0.173	0.041
Year 90	0.127	0.036
Year 91	0.075	0.034
Year 92	0.039	0.033

Number of Observations	198
Standard Error of Regression	0.152
R Squared	0.367

Notes:
1> Minimum monthly bill is based on 128 minutes of peak calling and 32 minutes of off-peak calling.
2> Log of per capita personal income. Source: NPA Data Services, Inc., April 1994.
3> Log of population. Source: NPA Data Services, Inc., April 1994.
4> Mean commute time from home to work. Source: 1990 U.S. Census, Tape File 3c.

1989-93 Price Regression for Top 30 Cellular Markets
Left hand Side Variable: Log of Price at 250 MOU <1

Variable	Estimate	Standard Error
Intercept	1.027	0.918
Log of Income <2	0.256	0.114
Log of Population <3	0.048	0.024
Log of Commute Time <4	0.129	0.136
Regulation	0.150	0.023
Year 89	0.159	0.033
Year 90	0.122	0.029
Year 91	0.070	0.027
Year 92	0.040	0.027
Number of Observations	198	
Standard Error of Regression	0.121	
R Squared	0.543	

Notes:
1> Minimum monthly bill is based on 200 minutes of peak calling and 50 minutes of off-peak calling.
2> Log of per capita personal income. Source: NPA Data Services, Inc., April 1994.
3> Log of population. Source: NPA Data Services, Inc., April 1994.
4> Mean commute time from home to work. Source: 1990 U.S. Census, Tape File 3c.

1989-93 Price Regression for Top 30 Cellular Markets
Left hand Side Variable: Log of Price at 30 MOU <1

Variable	Estimate	Standard Error
Intercept	4.701	1.752
Log of Income <2	-0.278	0.217
Log of Population <3	0.027	0.046
Log of Commute Time <4	0.257	0.259
Regulation	0.184	0.044
Year 89	0.102	0.062
Year 90	0.082	0.055
Year 91	0.072	0.051
Year 92	0.063	0.051
Number of Observations	198	
Standard Error of Regression	0.232	
R Squared	0.165	

Notes:
1> Minimum monthly bill is based on 24 minutes of peak calling and 6 minutes of off-peak calling.
2> Log of per capita personal income. Source: NPA Data Services, Inc., April 1994.
3> Log of population. Source: NPA Data Services, Inc., April 1994.
4> Mean commute time from home to work. Source: 1990 U.S. Census, Tape File 3c.

1989-93 Price Regression for RSA Cellular Markets
Left hand Side Variable: Log of Price at 160 MOU <1

Variable	Estimate	Standard Error
Intercept	4.341	0.411
Log of Income <2	-0.023	0.044
Log of Population <3	-0.066	0.010
Regulation	0.186	0.023
Year 89	0.267	0.048
Year 90	0.289	0.024
Year 91	0.193	0.019
Year 92	0.059	0.018

Number of Observations	577
Standard Error of Regression	0.169
R Squared	0.356

Notes:
1> Minimum monthly bill is based on 128 minutes of peak calling and 32 minutes of off-peak calling.
2> Log of per capita personal income. Source: NPA Data Services, Inc., April 1994.
3> Log of population. Source: NPA Data Services, Inc., April 1994.

1989-93 Price Regression for RSA Cellular Markets
Left hand Side Variable: Log of Price at 250 MOU <1

Variable	Estimate	Standard Error
Intercept	4.137	0.417
Log of Income <2	0.025	0.045
Log of Population <3	-0.049	0.010
Regulation	0.159	0.024
Year 89	0.291	0.047
Year 90	0.329	0.024
Year 91	0.191	0.019
Year 92	0.058	0.018

Number of Observations	578
Standard Error of Regression	0.172
R Squared	0.359

Notes:
1> Minimum monthly bill is based on 200 minutes of peak calling and 50 minutes of off-peak calling.
2> Log of per capita personal income. Source: NPA Data Services, Inc., April 1994.
3> Log of population. Source: NPA Data Services, Inc., April 1994.